

PATENT

Atty. Dkt. No. 113692CON-1

**REMARKS**

In view of the following discussion, the Applicants submit that none of the claims now pending in the application are unpatentable under the judicially created doctrine of obviousness-type double patenting, anticipated or obvious under the provisions of 35 U.S.C. §§ 102 and 103. Thus, the Applicants believe that all of these claims are now in condition for allowance.

**I. REJECTION OF CLAIMS 42, 49 AND 50 UNDER JUDICIALLY CREATED DOCTRINE OF DOUBLE PATENTING**

The Examiner rejected claims 42 and 49 under judicially created doctrine of double patenting over claims 1-24 of U.S. Patent 6,654,563, issued on November 25, 2003, hereinafter referred to as "Darcie" in view of US Patent 6,523,177, issued on February 18, 2003, hereinafter referred to as "Brown" and further in view of US Patent 6,147,786, issued on November 14, 2000, hereinafter referred to as "Pan" and claims 1-8 of US Patent 6,751,417, issued on June 15, 2004, hereinafter referred to as "Combs" in view of Brown.

Moreover, the Examiner rejected claims 42 and 49 under judicially created doctrine of double patenting over claims 38 and 42 of copending Application No. 10/721,864, hereinafter referred to as "Combs II" in view of Brown.

The Examiner has also rejected claim 50 under judicially created doctrine of double patenting over claims 1-24 of Darcie in view of Pan and claims 1-8 of Combs in view of US Patent 5,521,734, issued on May 28, 1996, hereinafter referred to as "Frigo."

Finally, the Examiner rejected claim 50 under judicially created doctrine of double patenting over claims 38 and 42 of Combs II.

In response, the Applicants provisionally agree to file one or more terminal disclaimers, if necessary, to overcome the present judicially created doctrine of double patenting when all other rejections against the pending claims of the present invention have been resolved.

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**II. REJECTION OF CLAIMS 42 AND 49 UNDER 35 U.S.C. § 102**

The Examiner has rejected claims 42 and 49 in the Office Action under 35 U.S.C. § 102 as being anticipated by Feldman, et al. (US Patent 6,577,414, issued June 10, 2003, hereinafter referred to as "Feldman"). Applicants respectfully traverse the rejection.

Feldman teaches a subcarrier modulation fiber-to-the-home/curb (FTTH/C) access system providing broadband communications. Feldman teaches delivering CATV and data signals from a headend to a service subscriber, comprising an optical combiner connected to receive the CATV and data signals from the headend; a passive optical network (PON) connected to an output of the transmitter; and an optical-electrical converter (OEC) connected to the PON, wherein the CATV and data signals are combined into a composite downstream optical signal and transmitted via the PON to the OEC and then delivered to the service subscriber for use. (See Feldman, col. 3, ll. 8-17.)

The Examiner's attention is directed to the fact that Feldman fails to teach, show or suggest a mux node for receiving a plurality of upstream signals from a plurality of mini fiber nodes, where at least one of said plurality of upstream signals is transmitted directly to at least one of said plurality of mini fiber nodes without being forwarded to said head end, as positively claimed by Applicants' independent claims 42 and 49. Specifically, Applicants' independent claims 42 and 49 recite:

42. A communication system, comprising:  
a mux node including a first lightwave interface device for communication with a head end, said mux node further including a second lightwave interface device for transmitting a plurality of optical signals, wherein at least two of the optical signals include both analog and digital signals, wherein said mux node includes a radio frequency signal compiler that enables frequency division multiplexing of a plurality of upstream signals received from a corresponding plurality of mini fiber nodes, where at least one of said plurality of upstream signals is transmitted directly to at least one of said plurality of mini fiber nodes without being forwarded to said head end; and  
a mini fiber node including a third lightwave interface device for receiving said optical signals from said second lightwave interface device of said mux node, said mini fiber node being further configured to communicate analog and digital signals to end user equipment via a wired connection. (Emphasis Added.)

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49 A network node that communicates between a head end and a plurality of mini fiber nodes, comprising:  
a first lightwave interface device for communication with a head end;  
a second lightwave interface device for transmitting a plurality of optical signals to a respective plurality of mini fiber nodes, wherein each of the plurality of mini fiber nodes being configured to communicate analog and digital signals to end user equipment via a wired connection, wherein at least two of the optical signals include both analog and digital signals; and  
a radio frequency signal compiler that enables frequency division multiplexing of a plurality of upstream signals received from a corresponding plurality of mini fiber nodes, where at least one of said plurality of upstream signals is transmitted directly to at least one of said plurality of mini fiber nodes without being forwarded to said head end. (Emphasis Added.)

Applicants' invention teaches a new architecture where a plurality of mux-nodes are deployed with a plurality of mini-fiber nodes. Specifically, the plurality of mux-nodes receives signals from the head-end and forwards the signals to the plurality of mini-fiber nodes. This architecture expands capacity and simplifies transmission and operation. In one embodiment, upstream signals from the mini fiber nodes that are destined to other mini fiber nodes can be forwarded directly to other mini fiber nodes without having to be first forwarded to the head-end. This approach reduces communication between the head-end and the plurality of mux-nodes. (See e.g., Applicants' specification, Page 3, lines 6-25)

In contrast, this novel approach is absent in the Feldman reference. There is no teaching that Feldman's HUB is capable of passing upstream signals received from the OCEs to other OCEs. Therefore, Feldman clearly fails to anticipate Applicants' independent claims 42 and 49. As such, the Applicants respectfully request the rejection be withdrawn.

### **III. REJECTION OF CLAIM 50 UNDER 35 U.S.C. § 103**

The Examiner has rejected claim 50 in the Office Action under 35 U.S.C. § 103 as being unpatentable over Feldman in view of Frigo (U.S. Patent No. 5,521,734, issued May 28, 1996, hereinafter referred to as "Frigo"). Applicants respectfully traverse the rejection.

The teachings of Feldman are discussed above. Frigo teaches a one-dimensional optical data arrays implemented within optical networks. A lowered cost

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optical network is achieved due to adoption of laser and receiver arrays in lieu of discrete transmitters and receivers. (See Frigo, Abstract.)

The Examiner's attention is directed to the fact that the alleged combination of Feldman and Frigo fails to teach, show or suggest a mux/demux/router component that is operative to receive electrical signals that have been converted from optical signals received from said head end, demultiplexes the received electrical signals, and forwards separate demultiplexed signals to said second lightwave interface device that transmits said separate demultiplexed signals to designated mini fiber nodes, as positively claimed by Applicants' independent claim 50. Specifically, Applicants' independent claim 50 recites:

50. A network node that communicates between a head end and a plurality of mini fiber nodes, comprising:

a first lightwave interface device for communication with a head end;

a second lightwave interface device for transmitting a plurality of optical signals to a respective plurality of mini fiber nodes, wherein each of the plurality of mini fiber nodes being configured to communicate analog and digital signals to end user equipment via a wired connection, wherein at least two of the optical signals include both analog and digital signals; and

a mux/demux/router component that is operative to receive electrical signals that have been converted from optical signals received from said head end, demultiplexes the received electrical signals, and forwards separate demultiplexed signals to said second lightwave interface device that transmits said separate demultiplexed signals to designated mini fiber nodes. (Emphasis Added.)

In one embodiment, Applicants' invention teaches a network node having a mux/demux/router component that is operative to receive electrical signals that have been converted from optical signals received from said head end, demultiplexes the received electrical signals, and forwards separate demultiplexed signals to said second lightwave interface device that transmits said separate demultiplexed signals to designated mini fiber nodes. The Examiner conceded that Feldman failed to provide this teaching. However, the Examiner then alleged that this significant gap is bridged by the teaching of Frigo. Applicants respectfully disagree.

Feldman specifically teaches away from Frigo and Applicants' invention. Feldman specifically states that the signal received by the subscriber premise is a composite signal, thereby negating the need to perform the demultiplexing function.

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(See Feldman, Column 5, lines 14-24). Thus, Feldman specifically stated that no demultiplexing function is performed at the HUB, thereby teaching away from Frigo and Applicants' invention.

In rejecting claims under 35 U.S.C. §103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. Denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp. 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the Examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

Applicants respectfully submit that the Examiner has failed to provide a prima facie case of obviousness. Thus the alleged combination of Feldman and Frigo fails to make obvious Applicants' independent claim 50. As such, the Applicants respectfully request the rejection be withdrawn.

### Conclusion

Thus, the Applicants submit that all of these claims now fully satisfy the requirement of 35 U.S.C. §§102 and 103. Consequently, the Applicants believe that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring the issuance of a final action in any of the claims now pending in the application, it is requested that the Examiner telephone Mr. Kin-Wah Tong, Esq. at (732) 530-9404 so

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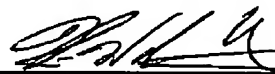
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that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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